BEFORE THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION OF THE STATE OF MONTANA

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APPLICATION TO CHANGE WATER RIGHT NO. 40A 30158427 BY MICHAEL D. & VALERIE R. BAKER	**PRELIMINARY DETERMINATION TO GRANT CHANGE**

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On August 24, 2022, Michael D. and Valerie R. Baker (Applicants) submitted Application to Change Water Right No. 40A 30158427 to change Statement of Claim No. 40A 123718-00 to the Lewistown Regional Office of the Department of Natural Resources and Conservation (Department or DNRC). The Department held a pre-application meeting with the Applicants on August 11, 2022. The Department published receipt of the application on its website. The DNRC sent Applicants a deficiency letter under §85-2-302, Montana Code Annotated (MCA), dated December 7, 2022. The Applicants responded with information dated April 5, 2023. Applicant's attorney provided additional information on July 6, 2023. The application was determined to be correct and complete as of July 3, 2023.

An Environmental Assessment for this Application was completed on October 6, 2023.

INFORMATION

The Department considered the following information submitted by the Applicants, which is contained in the administrative record.

Application as filed:

- Application to Change an Existing Irrigation Water Right, Form 606-IR
- Letter from Montana Sage Grouse Habitat Conservation Program, dated August 24, 2022
- Proposed Project Map
- Applicants did provide written notice of the application to other owners sharing the point of diversion or means of conveyance as noted in MCA 85-2-302(4)(c).
- Pump and pipe information provided by the Applicant's contractor – Big Sky Irrigation

Information Received after Application Filed

- Applicant response to deficiency letter received April 5, 2023.
- Attorney provided additional information about supplemental right received July 6, 2023.

Information within the Department's Possession/Knowledge

- NRCS Web Soil Survey for Wheatland County area, Montana
- Penman/Linacre Method evaporation data for Rygate Weather Station
- DNRC surface water and groundwater right records, including for the Statement of Claim proposed for change – Claim 40A 123718-00
- Wheatland County Water Resources Survey Maps and Field Notes, published in 1949.
- Aerial Photo, USDA 178-224, dated August 17, 1979
- Montana Cadastral parcel and property information.
- The Department also routinely considers the following information. The following information is not included in the administrative file for this Application, but is available upon request. Please contact the Lewistown Regional Office at 406-538-7459 to request copies of the following documents.
    - DNRC Return Flow Policy Memo, dated April 1, 2016
    - DNRC Historic Diverted Volume Standard Methods Memo, dated September 13, 2012.

The Department has fully reviewed and considered the evidence and argument submitted in this Application and preliminarily determines the following pursuant to the Montana Water Use Act (Title 85, Chapter 2, Part 3, Part 4, MCA).

WATER RIGHT TO BE CHANGED

FINDINGS OF FACT

1. Statement of Claim No. 40A 123718-00 is proposed for change in this application. This water right has a priority date of May 20, 1899 and claims 3.57 CFS diverted from the Musselshell River in the NWSENE of Section 32, T7N R18E, Wheatland County for the purpose of flood irrigation. Water was diverted to the place of use via Tierney Ditch No. 401A. The claimed period of use and period of diversion are both listed from March 1 to November 30 of each year.

2. The place of use of Claim No. 40A 123718-00 includes 22.50 acres in Lot 1, 24.5 Acres in Lot 2, 14.3 Acres in Lot 3, and 17.8 Acres in Lot 4, all in Section 3, T6N R18 E. It also covers 15.00 acres in the S2S2SE of Section 34, T7N 18E. Total acres claimed is 94.1 acres. The claimed place of use is 3.5 miles southeast of the Community of Shawmut.

3. This water right was included in the Preliminary Decree issued for Basin 40A on June 7, 2017.

TABLE 1: WATER RIGHT PROPOSED FOR CHANGE

W.R. NO.	FLOW	VOLUME	PURPOSE	PERIOD OF USE	PLACE OF USE	POINT OF DIVERSION	PRIORITY DATE
40A 123718-00	3.57 CFS	Unquantified	Flood Irrigation	March 1 – November 30	Govt Lot 1 Govt Lot 2 Govt Lot 3 Govt Lot 4 Section 3, T6N, R18E and S2S2SE Section 34, T7N, R18E	NESENE of Section 32, T7N R18E	May 20, 1899

4. There are no previous change authorizations on the right to be changed.

5. There is one water right supplemental to the place of use (40A 123717-00) of the right to be changed.

TABLE 2: SUPPLEMENTAL WATER RIGHT 40A 123717-00

W.R. NO.	FLOW	VOLUME	PURPOSE	PERIOD OF USE	PLACE OF USE	POINT OF DIVERSION	PRIORITY DATE
40A 123717-00	102 GPM	Unquantified	Flood Irrigation	March 1 – November 30	E2 Section 3, T6N, R18E	E2 Section 3, T6N, R18E	May 1, 1955

6. The water right being changed in this Application is located in the Musselshell River Basin above Roundup (Basin 40A) which is subject to an administrative water right basin closure, per ARM 36.12.1016.

CHANGE PROPOSAL

FINDINGS OF FACT

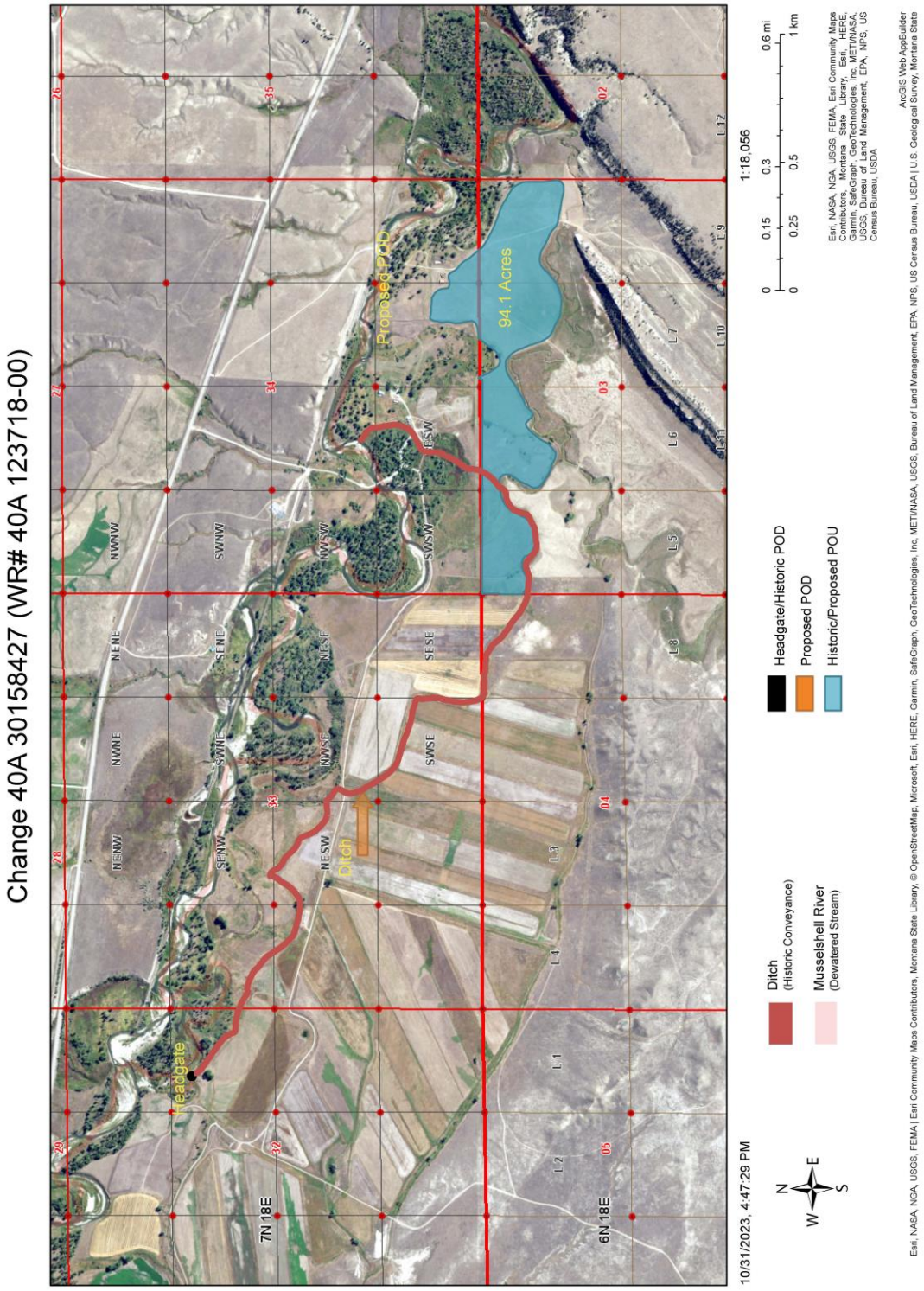
7. Applicants are proposing to change the point of diversion for Statement of Claim 40A 123718-00. They propose to move from a headgate on the Musselshell River in the NWSENE of Section 32, T7N R18E to a pumpsite on the Musselshell River located in the NWSESE Section

34, T7N R18E. The Applicants propose to divert water from the Musselshell River at the proposed pumpsite at a maximum flow rate of 3.57 CFS.

8. The Applicant's portion of the conveyance losses on the shared ditch, known as Tierney Ditch No. 401 A, were calculated to be 639.7 AF per year (See Appendixes A and B for conveyance losses and multi-user ditch calculations).

9. The Applicants have received approval from the Sage Grouse Habitat Conservation Program via a letter dated August 24, 2022. The project area falls within the Sage Grouse Habitat Conservation Area.

Figure 1. Overview Map for Change Application 40A 30158427



CHANGE CRITERIA

10. The Department is authorized to approve a change if the applicant meets its burden to prove the applicable § 85-2-402, MCA, criteria by a preponderance of the evidence. Matter of Royston, 249 Mont. 425, 429, 816 P.2d 1054, 1057 (1991); Hohenlohe v. DNRC, 2010 MT 203, ¶¶ 33, 35, and 75, 357 Mont. 438, 240 P.3d 628 (an applicant's burden to prove change criteria by a preponderance of evidence is "more probably than not."); Town of Manhattan v. DNRC, 2012 MT 81, ¶8, 364 Mont. 450, 276 P.3d 920. Under this Preliminary Determination, the relevant change criteria in §85-2-402(2), MCA, are:

> (2) Except as provided in subsections (4) through (6), (15), (16), and (18) and, if applicable, subject to subsection (17), the department shall approve a change in appropriation right if the appropriator proves by a preponderance of evidence that the following criteria are met:
> (a) The proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or certificate has been issued or for which a state water reservation has been issued under part 3.
> (b) The proposed means of diversion, construction, and operation of the appropriation works are adequate, except for: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.
> (c) The proposed use of water is a beneficial use.
> (d) The applicant has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use or, if the proposed change involves a point of diversion, conveyance, or place of use on national forest system lands, the applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water. This subsection (2)(d) does not apply to: (i) a change in appropriation right for instream flow pursuant to 85-2-320 or 85-2-436; (ii) a temporary change in appropriation right for instream flow pursuant to 85-2-408; or (iii) a change in appropriation right pursuant to 85-2-420 for mitigation or marketing for mitigation.

11. The evaluation of a proposed change in appropriation does not adjudicate the underlying right(s). The Department's change process only addresses the water right holder's ability to make a different use of that existing right. E.g., Hohenlohe, at ¶¶ 29-31; Town of Manhattan, at ¶8; *In the Matter of Application to Change Appropriation Water Right No.41F-31227 by T-L Irrigation Company* (DNRC Final Order 1991).

HISTORIC USE AND ADVERSE EFFECT

FINDINGS OF FACT - Historic Use

12. Claim No. 40A 123718-00 was historically used for flood irrigation of 94.1 acres, comprised of 22.5 acres in Govt Lot 1, 24.5 acres in Govt Lot 2, 14.3 acres in Govt Lot 3 and 17.8 acres in Govt Lot 4 of Section 3, T6N, R18E and 15.0 Acres in S2S2SE of Section 34, T7N R18E. The 1949 Wheatland County Water Resources Survey did not show evidence of irrigation however, USDA aerial photo 178-224 dated 8-23-79 corroborate the Applicant's assertion that current irrigation conditions closely resemble historical irrigation practices of the claimed 94.1 acre place of use prior to July 1, 1973. The Department finds this information credible and accepts a historically flood irrigated place of use of 94.1 acres.

13. The historic consumptive use was calculated by the Department using the methodology in ARM 36.12.1902(16). Based on 94.1 acres, an IWR seasonal evapotranspiration rate for flood irrigation at the Rygate weather station in Golden Valley County of 17.6 inches and a county management factor of 62.6%, the consumptive use for this right is 86.4 AF (94.1 AC x 17.6/12 AF/AC x 0.626 = 86.4 AF). The Department adds 5% of field applied volume to account for irrecoverable losses (IL) in flood irrigation systems. Using a 55% on farm efficiency for flood irrigation using contour ditches based on design slope information provided by the applicant, the irrecoverable losses are 7.9 AF (86.4 AF/0.55 x 0.05 = 7.9 AF). The total historical consumptive use including irrecoverable losses is 94.3 AF (86.4 AF + 7.9 AF = 94.3 AF).

14. The Applicant provided information to note the period of use has always been between March 1 and November 30. Applicant noted that the historic period of use falls between the Department authorized period of use for Climactic Area 3, which is April 15 to October.

15. Applicants stated that while there is a measuring device, no records of historical water use prior to July 1, 1973 water use exist in terms of personal or water commissioner records, crop production records or other documents supporting the amount of water historically diverted or used.

16. Statement of Claim 40A 123717-00 is supplemental to the place of use of the water right being changed. It has a different source (Mud Creek). This supplemental right is junior to the water right being changed and has substantially lower flow rate (0.23 CFS) than 40A 123718-00 (See Table 2). This supplemental right is also a far less reliable source of water, being available

only during spring runoff and heavy precipitation events and only has a place of use of 6 acres. This supplemental right's contribution to the common place was such that the Musselshell right (40A 123718-00) can receive full service on its own without the supplemental right.

17. The historic point of diversion for this water right is found at the NESENE of Section 32, T7N R18E in Wheatland County. While the 1949 Wheatland County Water Resources Survey did not show evidence of point of diversion, USDA aerial photo 178-224 dated 8-23-79 corroborate the Applicant's assertion as to the location of the historic point of use.

18. There are two other water rights on the Tierney Ditch No. 401A ditch, serving Claims 40A 211381-00 and 40A 1621-00. Statement of Claim 40A 211381-00, consists of stock drinking directly from the ditch system. The stock served with this claim are 500 cattle, 20 horses, and 1500 sheep. Based on Department approved methods of calculating animal units and flow rates, this results in 830 Animal Units consuming 14.11 AF/year with a flow rate of 0.02 CFS. Statement of Claim 40A 1621-00 reflects a flow rate of 5.00 CFS for irrigation use. The Department finds the shared irrigation ditch (Tierney Ditch No. 401A) has a calculated capacity of 40.36 CFS using the Manning's *n* roughness coefficient value of 0.35 and ditch dimensions submitted by the applicant. The Manning's roughness coefficient was used because it is an accepted method to calculate uniform flow in open channels.

19. The historically diverted flow rate for Claim 40A 123718-00 is 3.57 CFS. Water rights historically using the ditch had a total flow rate of 8.59 CFS. This is below the calculated capacity of the ditch.

20. Conveyance loss is defined as the portion of water diverted at the headgate that does not arrive at the irrigated place of use due to evaporation, seepage and evapotranspiration from the ditch. In this case, there are three water rights using the same diversion and conveyance facilities. The Department broke the Tierney Ditch No. 401A down into three segments based on the locations where water rights are taken out of the ditch. The Applicants' flow rate was then divided by flow remaining in the ditch for each segment to determine their percent of flow in each segment. Those percentages were then applied to the conveyance losses for each segment to determine the portion allocated to Claim 40A 123718-00 (See Table 3). The detailed calculation spreadsheet for each portion are at the end of this report as Appendix A.

TABLE 3: SUMMARY OF CONVEYANCE LOSS (CL) VOLUMES OF USERS OF TIERNEY DITCH NO. 401A

Segment	Water Right Number	Flow Rate (CFS)	Total Conveyance Loss	% of CL	CL Volume (By WR)
1	40A 211381-00	0.02	739.5 AF	0.00%	0.00
2	40A 1621-00	5.00		13.50%	98.83 AF
3	40A 123718-00	3.57		86.50%	639.70 AF

21. Seepage loss is calculated as (wetted perimeter)(ditch length)(loss rate)(days)/43560 ft2/acre. For the shared ditch, total seepage loss is 699.8 AF where the ditch is 10 feet wide and 8 feet deep, 12,112 ft. long (2.29 miles), the loss rate of 0.8 is based on silty clay soils and 121 is the number of days the Applicants historically used the ditch (May 1 – August 30). Based on the Applicants' portion of the total ditch length, the Applicants' portion of the seepage loss is 86.5% of the total 699.8 AF of seepage losses, or 605.3 AF (699.8 x 0.865 = 605.3) (see Appendix B).

22. Vegetation loss is calculated as (% loss per mile)(flow in CFS)(days ditch is flowing)(ditch length in miles)*2. For the shared ditch, total vegetation loss is 45.4 AF where percent loss per mile is a constant 0.0075, historic flow rate varies by ditch segment based on the flow rate removed, 121 days the Applicants use the ditch, 2.29-mile length and the unit conversion constant 2 is the number of AF/Day/CFS rounded up from 1.98. The Applicants' portion of the vegetation loss is 86.5% of the total 35.7 AF of seepage losses, or is 30.88 AF (35.7 x 0.865 = 30.88) (see Appendix B).

23. Ditch evaporation is calculated as (surface area of ditch (length*width in ft.))(evaporation rate in ft./acre/yr., period adjusted)/43,560 ft^2/acre. For the shared ditch, the evaporation is 9.4 AF where the main ditch is 10 ft. wide, 12,112 ft. long, and the period adjusted evaporation is 2.48 ft. (9.93 inches/season = 2.48 ft.). The Applicants' portion of the evaporation loss is 86.5% of the total 4.0 AF of seepage losses, or 3.46 AF (4.0 x 0.865 = 3.46) (see Appendix A).

24. The Department uses the following formula to determine historic diverted volume: Historic Diverted Volume = (Volume $_{\text{historic consumptive use}}$/On-farm efficiency) + Volume $_{\text{conveyance loss}}$. The historic consumptive use, not including irrecoverable losses is 86.4 AF. Using a flood irrigation efficiency of 55%, the field applied volume is 86.4/0.55 = 157.1 AF. Adding in

conveyance losses of 639.64 AF per year (40A 123718-00 portion), historic diverted volume is 796.74 AF (157.1+639.64 = 796.74) (See Appendix A).

25. The following table reflects the Department's findings of historic use:

TABLE 2: HISTORIC USE FINDINGS FOR WATER RIGHT PROPOSED FOR CHANGE

WR Claim #	**Priority Date**	**Diverted Volume**	**Flow Rate**	**Purpose (Total Acres)**	**Consump. Use** (including irrecoverable losses)	**Place of Use**	**Point of Diversion**
40A 123718-00	May 20, 1899	971.13 AF	3.57 CFS	Irrigation 94.1 acres	94.3 AF	Govt Lot 1 Govt Lot 2 Govt Lot 3 Govt Lot 4 Section 3, T6N, R18E and S2S2SE Section 34, T7N, R18E	NWSENE Section 32, T7N R18E

FINDINGS OF FACT – Adverse Effect

26. Applicants did provide written noice of the application to other owners sharing the point of diversion or means of conveyance as noted in MCA 85-2-302(4)(c).

27. Applicant provided information stating that the supplemental right (40A 123717-00) is limited by availability, serves a separate place of use and will not need to be used in conjunction with the water right being changed as the water right to be changed can provide full service irrigation on its own.

28. According to the DNRC Efficiency Policy Memo (Change in Method of Irrigation), dated December 2, 2015, If a water right appropriator is only changing their point of diversion and is not proposing to irrigate outside of the footprint of the historically irrigated place of use, then the Department will assume for purposes of the comparison of the historic use to the new use that there is no change in consumption or return flow resulting from a post-1973 change in method. The Department finds that because the Applicant is only changing the point of diversion and is

not increasing the number of acres historically irrigated or changing the place of use, there is no change in consumptive use.

29. As the proposed use will not involve the use of the historic ditch, the proposed diverted volume will not include conveyance losses. Changing the point of diversion and means of conveyance will result in elimating convyence loss. Further, as the proposed use is only changing the point of diversion and is not changing the place of use, the proposed diverted volume is the same as the historically consumed volume including irrecoverable losses, or 94.3 AF.

30. The proposed place of use is within the footprint as the historic place of use with no acres added or retired. As such, the proposed consumptive volume, including irrecoverable losses is the same as the historic consumptive volume, including irrecoverable losses, or 94.3 AF.

31. The Applicants will install a pipeline that will connect to a gated pipe system on the same footprint as what has been historically flood irrigated. The gated pipe system will be served its water with a pump/pipeline system instead of the historical headgate/ditch system, thereby eliminating the conveyance losses.

32. No other water rights will be adversely affected as a result of this change. This change proposes to reduce diverted volume and result in no change to consumed volume. The proposed pump diversion has a flow meter that will enable the Applicants to limit their diversion to the allowed flow rate of 3.57 CFS.

33. The timing of diversions may change under the Applicants' proposed operational plan, however they will stay within the historical period of diversion of March 1 - November 30. As part of their plan to prevent adverse effects, the Applicants will measure appropriations at the proposed pumpsite and comply with the District Court enforced water distribution project on the Musselshell River. Accordingly, the Applicants will be subject to the following measurement condition upon authorization of this change:

The Appropriator shall install a measuring device in the conveyance facility as near as practical to the pump site, in order to measure appropriations. The type and location of the device must be approved by the Department. The Appropriator shall keep a written record of the flow rate and volume of water diverted, including the period of time of diversion. Records must account separately for any appropriations under this authorization from appropriations under any other water right using the same diversion works and conveyance facility. Records shall be submitted

by December 31 of each year and upon request at other times during the year. Failure to submit reports as required by these conditions may be cause for revocation of the change. The records must be sent to the Lewistown Water Resources Regional Office. The Appropriator shall maintain the measuring/monitoring device so it always operates properly and measures flow rate accurately during periods of appropriation.

34. The Department finds that no adverse effect to other water rights will occur as a result of the proposed change.

BENEFICIAL USE

FINDINGS OF FACT

35. Applicants propose to divert water for irrigation of 94.1 acres in Govt Lots 1, 2, 3, 4 of Section 3, T6N R18E and S2S2SE of Section 34, T7N, R18E using a pump, pipeline and gated pipe system as the means of diversion, conveyance and irrigation method, respectively. Agricultural irrigation is a recognized beneficial use according to §85-2-102(5), MCA.

36. Applicants propose to divert 94.3 AF diverted volume and 3.57 CFS flow rate. This amount is supported by the Department's historical diverted volume formula as noted on the technical report. Flow rate for the proposed system of 3.57 CFS is supported by the pump and pipe documentation submitted by the Applicants in the Department file.

ADEQUATE DIVERSION

FINDINGS OF FACT

37. Applicants propose to use a Cornell pump (Model 6YBQ) that is capable of operating between 750-2624 GPM (1.67-5.85 CFS) , calibrated to 1600 GPM (3.56 CFS), and a 12 inch underground pipeline running up to the old ditch pad. There will be three risers installed leading to 12 inch gated pipe that will gravity irrigate each field. The proposed diversion includes a flow meter which will enable the Applicants to monitor both flow rate and volume diverted per the aforementioned measurement condition. The pump curve and sprinkler specifications were provided by the Applicants and their consultant at Big Sky Irrigation. The Department finds the proposed irrigation system and infrastructure are adequate to accommodate the proposed change to Claim 40A 123718-00.

POSSESSORY INTEREST

FINDINGS OF FACT

38. The Applicant signed the affidavit on the application form affirming the applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use.

CONCLUSIONS OF LAW

HISTORIC USE AND ADVERSE EFFECT

39. Montana's change statute codifies the fundamental principles of the Prior Appropriation Doctrine. Sections 85-2-401 and -402(1)(a), MCA, authorize changes to existing water rights, permits, and water reservations subject to the fundamental tenet of Montana water law that one may change only that to which he or she has the right based upon beneficial use. A change to an existing water right may not expand the consumptive use of the underlying right or remove the well-established limit of the appropriator's right to water actually taken and beneficially used. An increase in consumptive use constitutes a new appropriation and is subject to the new water use permit requirements of the MWUA. McDonald v. State, 220 Mont. 519, 530, 722 P.2d 598, 605 (1986)(beneficial use constitutes the basis, measure, and limit of a water right); Featherman v. Hennessy, 43 Mont. 310, 316-17, 115 P. 983, 986 (1911)(increased consumption associated with expanded use of underlying right amounted to new appropriation rather than change in use); Quigley v. McIntosh, 110 Mont. 495, 103 P.2d 1067, 1072-74 (1940)(appropriator may not expand a water right through the guise of a change – expanded use constitutes a new use with a new priority date junior to intervening water uses); Allen v. Petrick, 69 Mont. 373, 222 P. 451(1924)("quantity of water which may be claimed lawfully under a prior appropriation is limited to that quantity within the amount claimed which the appropriator has needed, and which within a reasonable time he has actually and economically applied to a beneficial use. . . . it may be said that the principle of beneficial use is the one of paramount importance . . . The appropriator does not own the water. He has a right of ownership in its use only"); Town of Manhattan, at ¶ 10 (an appropriator's right only attaches to the amount of water actually taken and beneficially applied);

Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review,* Pg. 9 (2011)(the rule that one may change only that to which it has a right is a fundamental tenet of Montana water law and imperative to MWUA change provisions); In the Matter of Application to Change a Water Right No. 41I 30002512 by Brewer Land Co, LLC, DNRC Proposal For Decision and Final Order (2004).[1]

40. Sections 85-2-401(1) and -402(2)(a), MCA, codify the prior appropriation principles that Montana appropriators have a vested right to maintain surface and ground water conditions substantially as they existed at the time of their appropriation; subsequent appropriators may insist that prior appropriators confine their use to what was actually appropriated or necessary for their originally intended purpose of use; and, an appropriator may not change or alter its use in a manner that adversely affects another water user. Spokane Ranch & Water Co. v. Beatty, 37 Mont. 342, 96 P. 727, 731 (1908); Quigley, 110 Mont. at 505-11,103 P.2d at 1072-74; Matter of Royston, 249 Mont. at 429, 816 P.2d at 1057; Hohenlohe, at ¶¶43-45.[2]

41. The cornerstone of evaluating potential adverse effect to other appropriators is the determination of the "historic use" of the water right being changed. Town of Manhattan, at ¶10 (recognizing that the Department's obligation to ensure that change will not adversely affect other water rights requires analysis of the actual historic amount, pattern, and means of water use). A change applicant must prove the extent and pattern of use for the underlying right proposed for change through evidence of the historic diverted amount, consumed amount, place of use, pattern of use, and return flow because a statement of claim, permit, or decree may not include the beneficial use information necessary to evaluate the amount of water available for change or

[1] DNRC decisions are available at:
http://www.dnrc.mt.gov/wrd/water_rts/hearing_info/hearing_orders/hearingorders.asp

[2] See also Holmstrom Land Co., Inc., v. Newlan Creek Water District,185 Mont. 409, 605 P.2d 1060 (1979); Lokowich v. Helena, 46 Mont. 575, 129 P. 1063(1913); Thompson v. Harvey, 164 Mont. 133, 519 P.2d 963 (1974)(plaintiff could not change his diversion to a point upstream of the defendants because of the injury resulting to the defendants); McIntosh v. Graveley, 159 Mont. 72, 495 P.2d 186 (1972)(appropriator was entitled to move his point of diversion downstream, so long as he installed measuring devices to ensure that he took no more than would have been available at his original point of diversion); Head v. Hale, 38 Mont. 302, 100 P. 222 (1909)(successors of the appropriator of water appropriated for placer mining purposes cannot so change its use as to deprive lower appropriators of their rights, already acquired, in the use of it for irrigating purposes); and, Gassert v. Noyes, 18 Mont. 216, 44 P. 959(1896)(change in place of use was unlawful where reduced the amount of water in the source of supply available which was subject to plaintiff's subsequent right).

potential for adverse effect.[3] A comparative analysis of the historic use of the water right to the proposed change in use is necessary to prove the change will not result in expansion of the original right, or adversely affect water users who are entitled to rely upon maintenance of conditions on the source of supply for their water rights. Quigley, 103 P.2d at 1072-75 (it is necessary to ascertain historic use of a decreed water right to determine whether a change in use expands the underlying right to the detriment of other water user because a decree only provides a limited description of the right); Royston, 249 Mont. at 431-32, 816 P.2d at 1059-60 (record could not sustain a conclusion of no adverse effect because the applicant failed to provide the Department with evidence of the historic diverted volume, consumption, and return flow); Hohenlohe, at ¶44-45; Town of Manhattan v. DNRC, Cause No. DV-09-872C, Montana Eighteenth Judicial District Court, *Order Re Petition for Judicial Review,* Pgs. 11-12 (proof of historic use is required even when the right has been decreed because the decreed flow rate or volume establishes the maximum appropriation that may be diverted, and may exceed the historical pattern of use, amount diverted or amount consumed through actual use); Matter of Application For Beneficial Water Use Permit By City of Bozeman, *Memorandum*, Pgs. 8-22 (Adopted by DNRC *Final Order* January 9,1985)(evidence of historic use must be compared to the proposed change in use to give effect to the implied limitations read into every decreed right that an appropriator has no right to expand his appropriation or change his use to the detriment of juniors).[4]

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[3]A claim only constitutes *prima facie* evidence for the purposes of the adjudication under § 85-2-221, MCA. The claim does not constitute *prima facie* evidence of historical use in a change proceeding under §85-2-402, MCA. For example, most water rights decreed for irrigation are not decreed with a volume and provide limited evidence of actual historic beneficial use. §85-2-234, MCA

[4] Other western states likewise rely upon the doctrine of historic use as a critical component in evaluating changes in appropriation rights for expansion and adverse effect: Pueblo West Metropolitan District v. Southeastern Colorado Water Conservancy District, 717 P.2d 955, 959 (Colo. 1986)("[O]nce an appropriator exercises his or her privilege to change a water right … the appropriator runs a real risk of requantification of the water right based on actual historical consumptive use. In such a change proceeding a junior water right … which had been strictly administered throughout its existence would, in all probability, be reduced to a lesser quantity because of the relatively limited actual historic use of the right."); Santa Fe Trail Ranches Property Owners Ass'n v. Simpson, 990 P.2d 46, 55 -57 (Colo.,1999); Farmers Reservoir and Irr. Co. v. City of Golden, 44 P.3d 241, 245 (Colo. 2002)("We [Colorado Supreme Court] have stated time and again that the need for security and predictability in the prior appropriation system dictates that holders of vested water rights are entitled to the continuation of stream conditions as they existed at the time they first made their appropriation); Application for Water Rights in Rio Grande County, 53 P.3d 1165, 1170 (Colo. 2002); Wyo. Stat. § 41-3-104 (When an owner of a water right wishes to change a water right … he shall file a petition requesting permission to make such a change …. The change … may be allowed provided that the quantity of water transferred … shall not exceed the amount of water historically diverted under the existing use, nor increase the historic rate of diversion under the existing use, nor increase the historic amount consumptively used under the existing use, nor decrease the historic amount of return flow, nor in any

42. An applicant must also analyze the extent to which a proposed change may alter historic return flows for purposes of establishing that the proposed change will not result in adverse effect. The requisite return flow analysis reflects the fundamental tenant of Montana water law that once water leaves the control of the original appropriator, the original appropriator has no right to its use and the water is subject to appropriation by others. E.g., Hohenlohe, at ¶44; Rock Creek Ditch & Flume Co. v. Miller, 93 Mont. 248, 17 P.2d 1074, 1077 (1933); Newton v. Weiler, 87 Mont. 164, 286 P. 133(1930); Popham v. Holloron, 84 Mont. 442, 275 P. 1099, 1102 (1929); Galiger v. McNulty, 80 Mont. 339, 260 P. 401 (1927); Head v. Hale, 38 Mont. 302, 100 P. 222 (1909); Spokane Ranch & Water Co., 37 Mont. at 351-52, 96 P. at 731; Hidden Hollow Ranch v. Fields, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185; In the Matter of Application for Change Authorization No. G (W)028708-411 by Hedrich/Straugh/Ringer, DNRC Final Order (Dec. 13, 1991); In the Matter of Application for Change Authorization No. G(W)008323-G76l By Starkel/Koester, DNRC Final Order (Apr. 1, 1992); In the Matter of Application to Change a Water Right No. 41I 30002512 by Brewer Land Co, LLC, DNRC Proposal For Decision and Final Order (2004); ARM 36.12.101(56)(Return flow - that part of a diverted flow which is not consumed by the appropriator and returns underground to its original source or another source of water - is not part of a water right and is subject to appropriation by subsequent water users).[5]

43. Although the level of analysis may vary, analysis of the extent to which a proposed change may alter the amount, location, or timing return flows is critical in order to prove that the proposed change will not adversely affect other appropriators who rely on those return flows as part of the source of supply for their water rights. Royston, 249 Mont. at 431, 816 P.2d at 1059-60; Hohenlohe, at ¶¶ 45-6 and 55-6; Spokane Ranch & Water Co., 37 Mont. at 351-52, 96 P. at 731. Noted Montana Water Law scholar Al Stone explained that the water right holder who seeks to

manner injure other existing lawful appropriators.); Basin Elec. Power Co-op. v. State Bd. of Control, 578 P.2d 557, 564 -566 (Wyo,1978) (a water right holder may not effect a change of use transferring more water than he had historically consumptively used; regardless of the lack of injury to other appropriators, the amount of water historically diverted under the existing use, the historic rate of diversion under the existing use, the historic amount consumptively used under the existing use, and the historic amount of return flow must be considered.)

[5] The Montana Supreme Court recently recognized the fundamental nature of return flows to Montana's water sources in addressing whether the Mitchell Slough was a perennial flowing stream, given the large amount of irrigation return flow which feeds the stream. The Court acknowledged that the Mitchell's flows are fed by irrigation return flows available for appropriation. Bitterroot River Protective Ass'n, Inc. v. Bitterroot Conservation Dist. 2008 MT 377, ¶¶ 22, 31, 43, 346 Mont. 508, ¶¶ 22, 31,43, 198 P.3d 219, ¶¶ 22, 31,43(*citing* Hidden Hollow Ranch v. Fields, 2004 MT 153, 321 Mont. 505, 92 P.3d 1185).

change a water right is unlikely to receive the full amount claimed or historically used at the original place of use due to reliance upon return flows by other water users. Montana Water Law, Albert W. Stone, Pgs. 112-17 (State Bar of Montana 1994).

44. In Royston, the Montana Supreme Court confirmed that an applicant is required to prove lack of adverse effect through comparison of the proposed change to the historic use, historic consumption, and historic return flows of the original right. 249 Mont. at 431, 816 P.2d at 1059-60. More recently, the Montana Supreme Court explained the relationship between the fundamental principles of historic beneficial use, return flow, and the rights of subsequent appropriators as they relate to the adverse effect analysis in a change proceeding in the following manner:

> The question of adverse effect under §§ 85-2-402(2) and -408(3), MCA, implicates return flows. A change in the amount of return flow, or to the hydrogeologic pattern of return flow, has the potential to affect adversely downstream water rights. There consequently exists an inextricable link between the "amount historically consumed" and the water that re-enters the stream as return flow. . . .
> An appropriator historically has been entitled to the greatest quantity of water he can put to use. The requirement that the use be both beneficial and reasonable, however, proscribes this tenet. This limitation springs from a fundamental tenet of western water law-that an appropriator has a right only to that amount of water historically put to beneficial use-developed in concert with the rationale that each subsequent appropriator "is entitled to have the water flow in the same manner as when he located," and the appropriator may insist that prior appropriators do not affect adversely his rights.
> This fundamental rule of Montana water law has dictated the Department's determinations in numerous prior change proceedings. The Department claims that historic consumptive use, as quantified in part by return flow analysis, represents a key element of proving historic beneficial use.
> We do not dispute this interrelationship between historic consumptive use, return flow, and the amount of water to which an appropriator is entitled as limited by his past beneficial use.

Hohenlohe, at ¶¶ 42-45 (internal citations omitted).

45. The Department's rules reflect the above fundamental principles of Montana water law and are designed to itemize the type evidence and analysis required for an applicant to meet its burden of proof. Admin.R.M. 36.12.1901 through 1903. These rules forth specific evidence and analysis required to establish the parameters of historic use of the water right being changed. Admin.R.M. 36.12.1901 and 1902. The rules also outline the analysis required to establish a lack of adverse effect based upon a comparison of historic use of the water rights being changed to

the proposed use under the changed conditions along with evaluation of the potential impacts of the change on other water users caused by changes in the amount, timing, or location of historic diversions and return flows. Admin.R.M. 36.12.1901 and 1903.

46. Applicant seeks to change existing water rights represented by its Water Right Claims. The "existing water rights" in this case are those as they existed prior to July 1, 1973, because with limited exception, no changes could have been made to those rights after that date without the Department's approval. Analysis of adverse effect in a change to an "existing water right" requires evaluation of what the water right looked like and how it was exercised prior to July 1, 1973. In McDonald v. State, the Montana Supreme Court explained:

> The foregoing cases and many others serve to illustrate that what is preserved to owners of appropriated or decreed water rights by the provision of the 1972 Constitution is what the law has always contemplated in this state as the extent of a water right: such amount of water as, by pattern of use and means of use, the owners or their predecessors put to beneficial use. . . . the Water Use Act contemplates that all water rights, regardless of prior statements or claims as to amount, must nevertheless, to be recognized, pass the test of historical, unabandoned beneficial use. . . . To that extent only the 1972 constitutional recognition of water rights is effective and will be sustained.

220 Mont. at 529, 722 P.2d at 604; see also Matter of Clark Fork River Drainage Area, 254 Mont. 11, 17, 833 P.2d 1120 (1992).

47. Water Resources Surveys were authorized by the 1939 legislature. 1939 Mont. Laws Ch. 185, § 5. Since their completion, Water Resources Surveys have been invaluable evidence in water right disputes and have long been relied on by Montana courts. In re Adjudication of Existing Rights to Use of All Water in North End Subbasin of Bitterroot River Drainage Area in Ravalli and Missoula Counties, 295 Mont. 447, 453, 984 P.2d 151, 155 (1999)(Water Resources Survey used as evidence in adjudicating of water rights); Wareing v. Schreckendgust, 280 Mont. 196, 213, 930 P.2d 37, 47 (1996)(Water Resources Survey used as evidence in a prescriptive ditch easement case); Olsen v. McQueary, 212 Mont. 173, 180, 687 P.2d 712, 716 (1984) (judicial notice taken of Water Resources Survey in water right dispute concerning branches of a creek).

48. While evidence may be provided that a particular parcel was irrigated, the actual amount of water historically diverted and consumed is critical. E.g., *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, DNRC Proposal for Decision adopted by Final Order (2005). The Department cannot assume that a parcel received the full duty of water or that

it received sufficient water to constitute full service irrigation for optimum plant growth. Even when it seems clear that no other rights could be affected solely by a particular change in the location of diversion, it is essential that the change also not enlarge an existing right. See MacDonald, 220 Mont. at 529, 722 P.2d at 604; Featherman, 43 Mont. at 316-17, 115 P. at 986; Trail's End Ranch, L.L.C. v. Colorado Div. of Water Resources 91 P.3d 1058, 1063 (Colo., 2004).

49. The Department has adopted a rule providing for the calculation of historic consumptive use where the applicant proves by a preponderance of the evidence that the acreage was historically irrigated. ARM 36.12.1902 (16). In the alternative an applicant may present its own evidence of historic beneficial use. In this case Applicants elected to proceed under ARM 36.12.1902.

50. If an applicant seeks more than the historic consumptive use as calculated by ARM .36.12.1902 (16), the applicant bears the burden of proof to demonstrate the amount of historic consumptive use by a preponderance of the evidence. The actual historic use of water could be less than the optimum utilization represented by the calculated duty of water in any particular case. E.g., Application for Water Rights in Rio Grande County 53 P.3d 1165 (Colo., 2002) (historical use must be quantified to ensure no enlargement); In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC., supra; Orr v. Arapahoe Water and Sanitation Dist. 753 P.2d 1217, 1223 -1224 (Colo., 1988)(historical use of a water right could very well be less than the duty of water); Weibert v. Rothe Bros., Inc., 200 Colo. 310, 317, 618 P.2d 1367, 1371 - 1372 (Colo. 1980) (historical use could be less than the optimum utilization "duty of water").

51. Based upon the Applicants' evidence of historic use, the Applicants have proven by a preponderance of the evidence the historic use of Water Right Claim No. 40A 123718-00 of 971.13 AF diverted volume and 3.57 CFS flow rate with a consumptive use (including irrecoverable losses) of 94.3 acre-feet. (FOF Nos. 12-25)

52. Based upon the applicants' comparative analysis of historic water use and return flows to water use and return flows under the proposed change, the Applicants have proven that the proposed change in appropriation right will not adversely affect the use of the existing water rights of other persons or other perfected or planned uses or developments for which a permit or

certificate has been issued or for which a state water reservation has been issued. §85-2-402(2)(b), MCA. (FOF Nos. 26-34)

BENEFICIAL USE

53. A change applicant must prove by a preponderance of the evidence the proposed use is a beneficial use. §§85-2-102(5) and -402(2)(c), MCA. Beneficial use is and has always been the hallmark of a valid Montana water right: "[T]he amount actually needed for beneficial use within the appropriation will be the basis, measure, and the limit of all water rights in Montana . . ." McDonald, 220 Mont. at 532, 722 P.2d at 606. The analysis of the beneficial use criterion is the same for change authorizations under §85-2-402, MCA, and new beneficial permits under §85-2-311, MCA. Admin.R.M. 36.12.1801. The amount of water that may be authorized for change is limited to the amount of water necessary to sustain the beneficial use. E.g., Bitterroot River Protective Association v. Siebel*, Order on Petition for Judicial Review*, Cause No. BDV-2002-519, Montana First Judicial District Court (2003) (*affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518); Worden v. Alexander, 108 Mont. 208, 90 P.2d 160 (1939); Allen v. Petrick, 69 Mont. 373, 222 P. 451(1924); Sitz Ranch v. DNRC, DV-10-13390, Montana Fifth Judicial District Court, *Order Affirming DNRC Decision*, Pg. 3 (2011)(citing BRPA v. Siebel, 2005 MT 60, and rejecting applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet); Toohey v. Campbell, 24 Mont. 13, 60 P. 396 (1900)("The policy of the law is to prevent a person from acquiring exclusive control of a stream, or any part thereof, not for present and actual beneficial use, but for mere future speculative profit or advantage, without regard to existing or contemplated beneficial uses. He is restricted in the amount that he can appropriate to the quantity needed for such beneficial purposes."); §85-2-312(1)(a), MCA (DNRC is statutorily prohibited from issuing a permit for more water than can be beneficially used).

54. The Department can also consider waste in a change proceeding. Hohenlohe at ¶ 71. Waste is defined to include the "application of water to anything but a beneficial use." §85-2-102(23), MCA. An absence of evidence of waste does not prove the amount requested is for a beneficial use. E.g., *Stellick*, supra.

55. Applicant proposes to use water for irrigation which is a recognized beneficial use. §85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence irrigation is a beneficial use and that 94.3 acre-feet of diverted volume and 3.57 CFS flow rate of water requested is the amount needed to sustain the beneficial use and is within the standards set by DNRC Rule/other standard. §85-2-402(2)(c), MCA (FOF Nos. 35-36)

ADEQUATE MEANS OF DIVERSION

56. Pursuant to §85-2-402 (2)(b), MCA, the Applicant must prove by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate. This codifies the prior appropriation principle that the means of diversion must be reasonably effective for the contemplated use and may not result in a waste of the resource. Crowley v. 6th Judicial District Court, 108 Mont. 89, 88 P.2d 23 (1939); In the Matter of Application for Beneficial Water Use Permit No. 41C-11339900 by Three Creeks Ranch of Wyoming LLC (DNRC Final Order 2002)(information needed to prove that proposed means of diversion, construction, and operation of the appropriation works are adequate varies based upon project complexity; design by licensed engineer adequate).

57. Pursuant to §85-2-402 (2)(b), MCA, Applicants have proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. (FOF No. 37)

POSSESSORY INTEREST

58. Pursuant to §85-2-402(2)(d), MCA, the Applicant must prove by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. See also ARM 36.12.1802

59. The Applicants have proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. (FOF No. 38)

PRELIMINARY DETERMINATION

Subject to the terms and analysis in this Preliminary Determination Order, the Department preliminarily determines that this Application to Change Water Right No. 40A 30154827 should be granted subject to the following.

Applicants are proposing to change the point of diversion for Statement of Claim 40A 123718-00. They propose to move from a headgate in the NESENE Section 32, T7N R18E supplying water through irrigation ditch, to a pumpsite in the Musselshell River located in the NWSESE Section 34 T7N R18E. The Applicants propose to supply gated pipe flood irrigation to the historically irrigated 94.1 acres.

This authorization as granted will be subject to the following measurement condition:

> The Appropriator shall install a measuring device in the conveyance facility as near as practical to the pump site, in order to measure appropriations. The type and location of the device must be approved by the Department. The Appropriator shall keep a written record of the flow rate and volume of water diverted, including the period of time of diversion. Records must account separately for any appropriations under this authorization from appropriations under any other water right using the same diversion works and conveyance facility. Records shall be submitted by December 31 of each year and upon request at other times during the year. Failure to submit reports as required by these conditions may be cause for revocation of the change. The records must be sent to the Lewistown Water Resources Regional Office. The Appropriator shall maintain the measuring/monitoring device so it always operates properly and measures flow rate accurately during periods of appropriation.

NOTICE

This Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to §85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§85-2-307, and -308, MCA. If this Application receives a valid objection, it will proceed to a contested case proceeding pursuant to Title 2 Chapter 4 Part 6, MCA, and §85-2-309, MCA. If this Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection(s) and the valid objection(s) are conditionally withdrawn, the Department will consider the proposed condition(s) and grant the

Application with such conditions as the Department decides necessary to satisfy the applicable criteria. E.g., §§85-2-310, -312, MCA.

DATED this 20th of October, 2023.

/Original signed by Steven B. Hamilton/
Steven B. Hamilton, Manager
Lewistown Regional Office
Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 21st day of October, 2023, by first class United States mail.

CHRISTOPHER T. SCOONES
(ATTORNEY FOR MICHAEL D. AND VALERIE R. BAKER)
PO BOX 4570
BOZEMAN, MT 59772

DATED this 21st of October, 2023.

_____
Steven Hamilton, Regional Manager
Lewistown Regional Office
Department of Natural Resources and Conservation

Appendix A: Calculations for Applicant Portion of Conveyance Losses (multi-user ditch loss calculations)

Section	Landowner	CFS	Conveyance Loss Total	Conveyance Loss % By % Distance	Ditch Length On Property (Feet)	Ditch Length % of Total
1	40A 211381 (LD)	0.02		0.00	0	0.0000
2	40A 1621-00 (Irr)	5		171.14	2803	0.2314
3	40A 123718 (Irr)	3.57		568.36	9309	0.7686
4	-	0		0.00	0	0.0000
5	-	0		0.00	0	0.0000
6	-	0		0.00	0	0.0000
7	-	0		0.00	0	0.0000
	Total	8.59	739.5	739.50	12112	0.0000

CFS % Of Total Per Section

Landowner	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
40A 211381 (LD)	0.002						
40A 1621-00 (Irr)	0.582	0.583					
40A 123718 (Irr)	0.416	0.417	1.000				
-	0.000	0.000	0.000	#DIV/0!			
-	0.000	0.000	0.000	#DIV/0!	#DIV/0!		
-	0.000	0.000	0.000	#DIV/0!	#DIV/0!	0.000	
-	0.000	0.000	0.000	#DIV/0!	#DIV/0!	0.000	0.0000
CFS Section Total	8.59	8.6	3.57	0	0	0	0

Conv. Loss By Distance * CFS % Of Total Per Section

Conv. Loss By Distance	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7
Landowner	0.00	171.14	568.36	0.00	0.00	0.00	0.00
40A 211381 (LD)	0.0						
40A 1621-00 (Irr)	0.0	99.8					
40A 123718 (Irr)	0.0	71.3	568.4				
-	0.0	0.0	0.0	#DIV/0!			
-	0.0	0.0	0.0	#DIV/0!	#DIV/0!		
-	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.0	
-	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.0	0.0

Landowner	Landowner Conveyance Loss Total	% of Tot.
40A 211381 (LD)	0.00	0.00%
40A 1621-00 (Irr)	99.85	13.50%
40A 123718 (Irr)	639.65	86.50%
-	#DIV/0!	#DIV/0!
-	#DIV/0!	#DIV/0!
-	#DIV/0!	#DIV/0!
-	#DIV/0!	#DIV/0!
Total	739.50	100.00%
Accurate?	TRUE	

Appendix B: Historic and Proposed Volume Comparison

Historic Consumptive Volume (HCV) Flood Sprinkler	Golden Valley/Rygate Flood ET *(Inches)*	Golden Valley 1964-1973 Management Factor *(Percent)*	Historic Acres	HCV AF *(minus IL)*	On-farm Efficiency	Field Application AF	Historic Irrecoverable Losses *(IL) Flood 5%:*	**HCV AF *(Including IL)***
	17.6	62.6%	94.1	86.4	55%	157.1	7.9	**94.3**
Historic Diverted Volume (HDV)	HCV AF *(minus IL)*	On-farm Efficiency	Seasonal Conveyance Loss Volume (seepage loss + vegetation loss + ditch evaporation)	**Total HDV AF**				
	86.4	55%	739.5	**896.5**				
Seepage Loss:	Ditch Wetted Perimeter (Feet)	Ditch Length *(Feet)*	Ditch Loss Rate (ft3/ft2/day)	Days Irrigated	Seepage Loss *(/43560)*			
	26	12112	0.8	121	699.8			
Vegetation Loss:	% loss/mile	Est. Flow Rate *(CFS)* =	Days Irrigated	ditch length *(miles)*	Vegetation Loss (*2)			
	0.0075	8.57	121	2.3	35.7			
Ditch Evaporation:	Ditch Width *(Feet)*	Ditch Length *(Feet)*	Annual Evaporation *(Potts)*	Period Adjusted Evaporation	Ditch Evaporation *(/43560)*			
	10	12112	2.48	1.43	4.0			
Historic Diverted Volume (ac-ft)		**896.5**						
	Applicant's portion of conveyance loss	**86.50%**			**Applicant's Historic Diverted Volume (ac-ft)**	**796.72**		
Proposed Consumptive Volume (PCV) Exising flood irrigation system	Golden Valley/Rygate Weather Station Flood/Sprinkler ET (Inches)	Golden Valley County 1964-1973 Management Factor (Percent)	Proposed New Acres	PCV AF (minus IL)	On-farm Efficiency (Percent)	Field Application AF	*Proposed Irrecoverable Losses (IL) Flood 5%*	**PCV AF (Including IL)**
Flood acres	17.6	62.6%	94.1	86.4	55%	157.1	7.9	**94.3**